Research Department
Federal Reserve
Bank of
San Francisco

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Weekly Letter

Exchange Rate Indicators

An unwelcome effect of recent financial innovations has been to complicate greatly the interpretation of the traditional monetary aggregates, M1 and M2, by blurring the distinction between checking and savings accounts. Very likely, these changes have altered relations between the aggregates and the spending, interest rate, and inflation goals of monetary policy, although by how much and for how long is quite uncertain. As a result, authorities are in danger of "flying blind" over the coming year in setting money growth targets they cannot be confident will have the same economic effects they once had.

Naturally, the search has intensified for alternative measures to help steer monetary policy. Along with conventional suggestions —the monetary base, nominal and real (somehow measured) interest rates—has come a more novel proposal: to use the *foreign exchange value of the dollar* as a guide to policy. But what guidance could exchange rates provide that could not be furnished by purely domestic indicators?

Indicators

The most likely way exchange rates might be useful in guiding monetary policy is by serving as *indicators* of the economic conditions with which policy is concerned. Exchange rates are affected by certain domestic economic factors such as real interest rates and expected inflation that are not directly measurable, or only imperfectly so. Thus, movements in exchanges rates provide "clues," or information, about these variables that, when used with other available data, may be helpful in the formulation of policy.

Foreign exchange rates are apt to be most helpful in interpreting changes in domestic interest rates, particularly longer-term rates. Any nominal interest rate is the sum of two parts: an inflation "premium" (equal to the inflation anticipated over the life of the investment) which compensates for the erosion of the purchasing power of the principal; and the "real" rate, which is effectively the amount of additional purchasing power the investor obtains. Both variables are plainly of concern to policymakers but for different reasons. The real, rather than the nominal, interest rate most directly influences real spending and hence is an indicator of monetary policy's influence on economic activity. The inflation premium measures the public's anticipation of future price increases and, thus, is a gauge of the credibility of the authorities' commitment to contain inflation.

Still, authorities can know only nominal interest rates with any certainty, since these, and not their real or expected inflation components, are quoted in financial markets. There is therefore no way to determine directly when interest rates vary whether it is the real rate, or expected inflation, or both that has changed.

This problem is probably not so serious for short-term interest rates, since inflation anticipated over the near-term can often be gauged from recent inflation trends. Interpreting movements in longer-term interest rates is much more difficult because inflation expected over the next several years depends critically upon perceptions of the future course of monetary policy, which may not be related in any obvious way to past developments. However, the longer-term variations in real interest and expected inflation rates are likely to have the greater influence on economic decisions, and are thus generally of greater concern to policymakers.

Recent experience graphically illustrates the acute dilemma authorities can face as a result of this ambiguity. U.S. medium and long-term interest rates rose by nearly 4

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percentage points from mid-1980 through 1981, yet there was virtually no consensus among observers as to why. Some argued that the trend mainly reflected an increase in real interest rates due to the substantial slowing of growth in the measured money aggregates. Others asserted that rising interest rates reflected increases in expected future inflation due to fears that prospectively enormous government budget deficits would lead to higher future money growth. So, according to the first explanation the Federal Reserve could lower interest rates by raising money growth to bring down real rates; while according to the second it should slow money growth to calm inflation concerns (or, perhaps, persuade the administration to reduce the deficit.)

Exchange rate signals

Exchange rates can help in interpreting such interest rate movements mainly because real interest rates and expected inflation affect them quite differently—indeed in opposite directions. Ultimately, the dollar's foreign exchange value must move to keep the prices of U.S. and foreign products in world markets at the "competitive" level dictated by their demands and supplies. In the long-run, then, the dollar's value will vary with the domestic level of U.S. prices compared to those abroad—its "purchasing power parity" (PPP) value—and the competitiveness of U.S. goods.

In this way, increases in our expected inflation tend mainly to lower the *forward* value of the dollar, reflecting the market's perception of its future level. In the short-run, though, the dollar may be pushed away from its PPP value by real interest fluctuations (relative to those abroad), arising from temporary fluctuations in credit markets, that attract or repel international capital from our shore. Increases in U.S. real interest rates, then, tend to raise the *spot* value of the dollar, both absolutely and relative to its PPP level. But, given the temporary nature of such fluctuations, real interest rates tend to have little influence on *longer-term* forward values of the dollar.

In short, a real increase in U.S. interest rates relative to abroad *raises* the spot dollar, while a rise in our expected inflation *lowers* the dollar's forward value (Chart 1). This reasoning can be applied in reverse. A rise in U.S. interest rates that is accompanied by a rise in the spot value of the dollar (relative to PPP) can be viewed as an indication that U.S. longer-term real interest rates have risen. Alternatively, if interest rates here rise, while the *forward* value of the dollar *declines*, there is reason to suspect that long-term expected U.S. inflation has gone up. (Of course, a rise in nominal rates could reflect an increase in both expected inflation and the real interest rates, and thus could be accompanied by a spot rate increase and a forward rate decline).

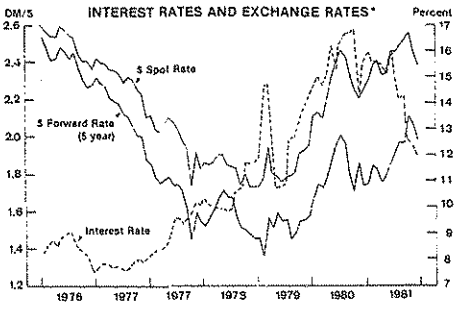
Viewed in this way, foreign exchange markets *did* provide significant "clues" as to the cause of our interest rate increases in 1980 and 1981. During this period, the dollar's spot value rose above its PPP level to an unprecedented degree, while the five-year forward value also increased (Chart 2). This pattern suggests that U.S. real interest rates increased substantially over this period, while our expected inflation would appear to have fallen, at least relative to expected inflation abroad.

Exchange rates might also have served as an early warning of impending inflation during 1976 and early 1977. Although money growth accelerated significantly then, interest rates actually fell slightly, while the ensuing inflation (in consumer prices) did not become evident until 1978. However, the forward (and spot) value of the dollar did begin to decline rapidly by the end of 1976, a trend that, in retrospect, was a signal of the inflationary pressures that were building up.

Caution

Still, the signals provided by exchange rate indicators are far from unambiguous. After

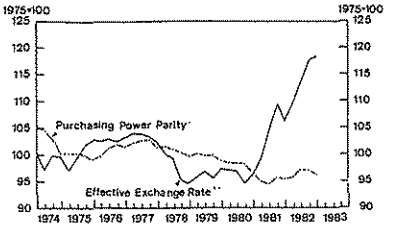
CHART 1



*Spot and 5-year forward rates are DM/$. The interest rate is the 5-year Eurodollar rate.

CHART 2

US DOLLAR AND PURCHASING POWER PARITY



*Trade-weighted index: foreign wholesale prices to U.S. wholesale prices.

**Trade-weighted value of the U.S. dollar in terms of the currencies of 15 trading partners.

all, the foreign exchange value of the dollar reflects conditions abroad, as well as those in the U.S. The implications of exchange rate trends thus can easily be misread unless foreign conditions are taken into account.

For example, although U.S. interest rates fell considerably during 1982, the dollar has remained remarkably strong. Viewed alone, this pattern might suggest a substantial drop in our expected inflation, but little if any drop in our real interest rates. However, foreign interest rates also fell sharply during this period, in some cases by nearly as much as our own. The Swiss five-year rate, for example, declined by nearly 5 percentage points last year. Moreover, recent inflation trends in Switzerland do not point to any dramatic improvement in its longer-term inflation outlook, suggesting that Swiss real interest rates have fallen sharply. If so, then U.S. *real* interest rates must also have declined considerably, for otherwise the dollar would have soared much further against the Swiss franc last year.

This experience also suggests that exchange rate trends generally will provide the clearest indicators of U.S. conditions when foreign conditions are most stable and predictable. Thus, movements in the dollar versus the Swiss franc, given Switzerland's comparatively stable inflation record, are apt to be more informative to our own policymakers than the dollar's fluctuations against currencies issued by nations with less enviable performances.

Similarly, many factors can alter the long-run competitiveness of the U.S. dollar, causing it to deviate persistently from PPP. Not all departures from PPP, therefore, mean that real interest rates have changed. In fact, there is substantial evidence to suggest that real interest rates varied little prior to 1979, so that departures from PPP mainly reflected shifts in competitiveness. We could be confident that exchange rate trends during the last half of 1980 and during 1981 were signaling a rise in our real interest rates *only* because the dollar was much further above its PPP level than it had been in recent experience. Again, not every movement in exchange rates is fraught with significance.

Still useful

Nonetheless, these ambiguities (which are shared to some degree by nearly all economic indicators) mean simply that exchange rate indicators must be used with considerable care; they do not render them useless as guides to policy. At the least, though, authorities will have to evaluate current and prospective economic conditions abroad, as well as factors that might have altered the international competitiveness of U.S. products, in interpreting exchange rate movements. Clearly, these signals will be easiest to read when foreign economic conditions are relatively stable, and very difficult to interpret when they are highly volatile.

More important, though, exchange rates are only one source of information available to authorities, so policy must be guided as well by the signals from domestic indicators such as the money-aggregates, real growth, and inflation trends. Exchange rates are best viewed as supplements to the conventional measures that have guided policy in the past. And, possibly, once the adjustment to financial innovations is complete, the money aggregates (perhaps revised) may once again provide a reasonably clear indication of the economy's direction, reducing the need to rely on the exchange rate or other less conventional indicators. Still, as past experience has shown, exchange rates are likely to continue to be useful to policy makers, if only as "alarms" signaling that public perceptions about the ultimate course of policy may be diverging dangerously from official intentions.

Charles Pigott

FRBSF Weekly Letter

BANKING DATA—TWELFTH FEDERAL RESERVE DISTRICT

(Dollar amounts in millions)

Selected Assets and Liabilities Large Commercial Banks	Amount Outstanding 1/26/83	Change from 1/19/83	Change from year ago Dollar	Change from year ago Percent
Loans (gross, adjusted) and investments*	163,582	– 26	6,368	4.0
Loans (gross, adjusted) — total#	142,496	– 31	6,770	5.0
Commercial and industrial	45,106	– 229	3,473	8.3
Real estate	57,368	– 55	991	1.8
Loans to individuals	23,841	– 49	252	1.1
Securities loans	2,754	299	836	44.0
U.S. Treasury securities*	7,561	116	1,385	22.4
Other securities*	13,525	– 91	– 1,787	– 11.7
Demand deposits — total#	37,668	–2,553	– 787	– 2.0
Demand deposits — adjusted	27,092	– 836	– 406	– 1.5
Savings deposits — total	57,518	1,504	27,193	89.7
Time deposits — total#	77,385	–1,810	– 13,837	– 15.2
Individuals, part. & corp.	68,391	–1,630	– 13,809	– 16.8
(Large negotiable CD's)	26,317	– 534	– 10,060	– 2.9

Weekly Averages of Daily Figures	Week ended 1/26/83	Week ended 1/19/83	Comparable year-ago period
Member Bank Reserve Position			
Excess Reserves (+)/Deficiency (–)	163	198	67
Borrowings	4	0	171
Net free reserves (+)/Net borrowed(–)	159	198	– 104

* Excludes trading account securities.

Includes items not shown separately.

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